Name: Date:

PCW_09_22 Coordinate transformations v12

Question 1

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 6 \cdot f[9x+5] + 2$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow \left(\frac{a-5}{9} \;,\; 6b+2 \right)$$

Question 2

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f\left[\frac{x}{9} - 3\right] + 4}{8}$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow \left(9\,(a+3) \;,\; \frac{b+4}{8} \right)$$

Question 3

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f[7\,(x-9)]}{6} - 5$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a,b) \rightarrow \left(\frac{a}{7} + 9 \;,\; \frac{b}{6} - 5 \right)$$

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Question 4

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 9 \cdot \left(f\left[\frac{x+2}{6} \right] + 3 \right)$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to (6a - 2 \;,\; 9\,(b + 3))$$

Question 5

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; \frac{f[8\,(x+3)]}{7} + 5$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to \left(\frac{a}{8} - 3 \;,\; \frac{b}{7} + 5 \right)$$

Question 6

Consider the two functions f and g, where g is defined as a transformation of f:

$$g[x] \;=\; 4 \cdot f\left[\frac{x-9}{5} \right] - 7$$

For point (a, b) on curve f there is a corresponding point on the curve g. Write the coordinate transformation.

$$(a, b) \to (5a + 9 \;,\; 4b - 7)$$